

No. 675,310.

Patented May 28, 1901.

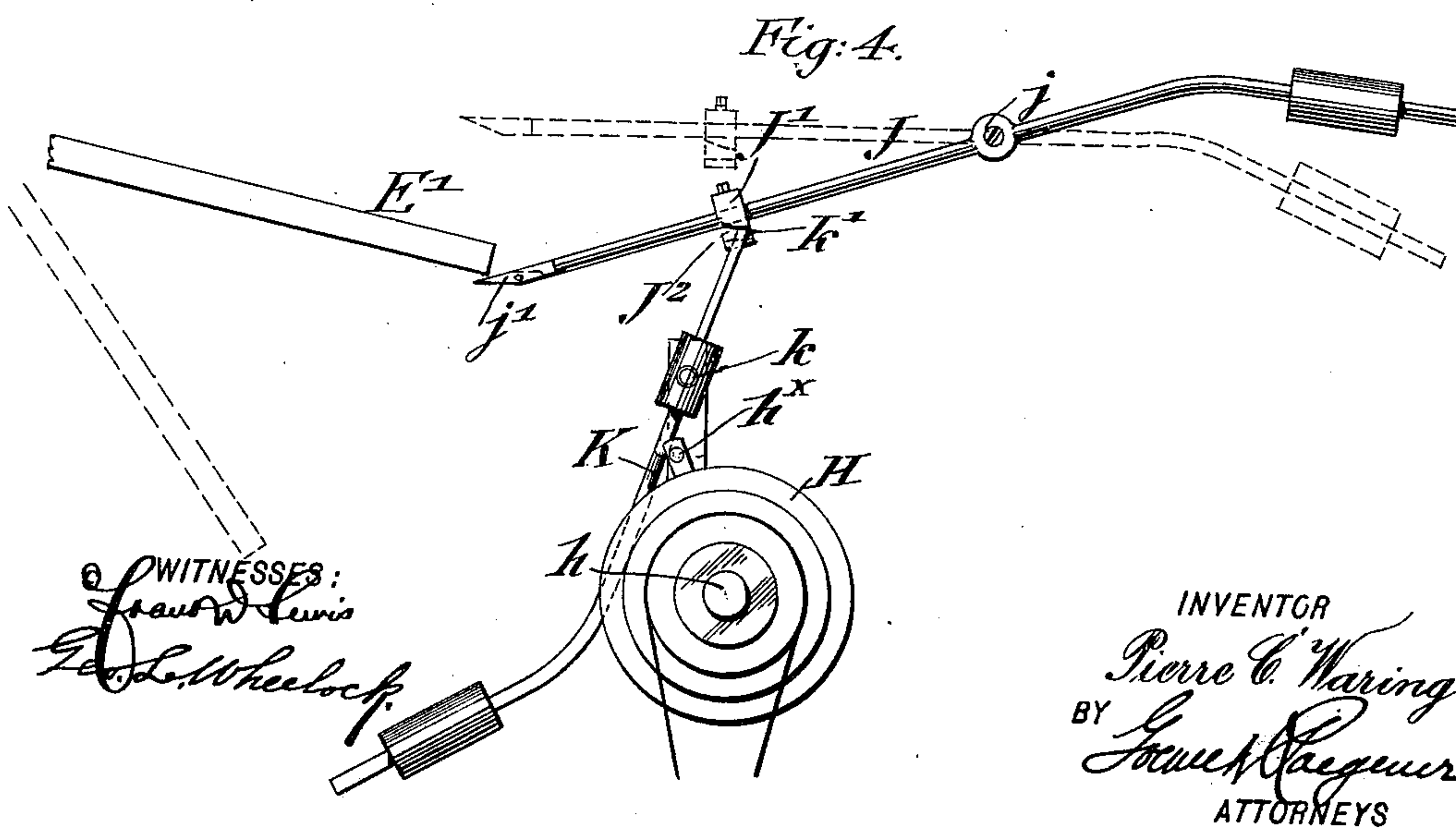
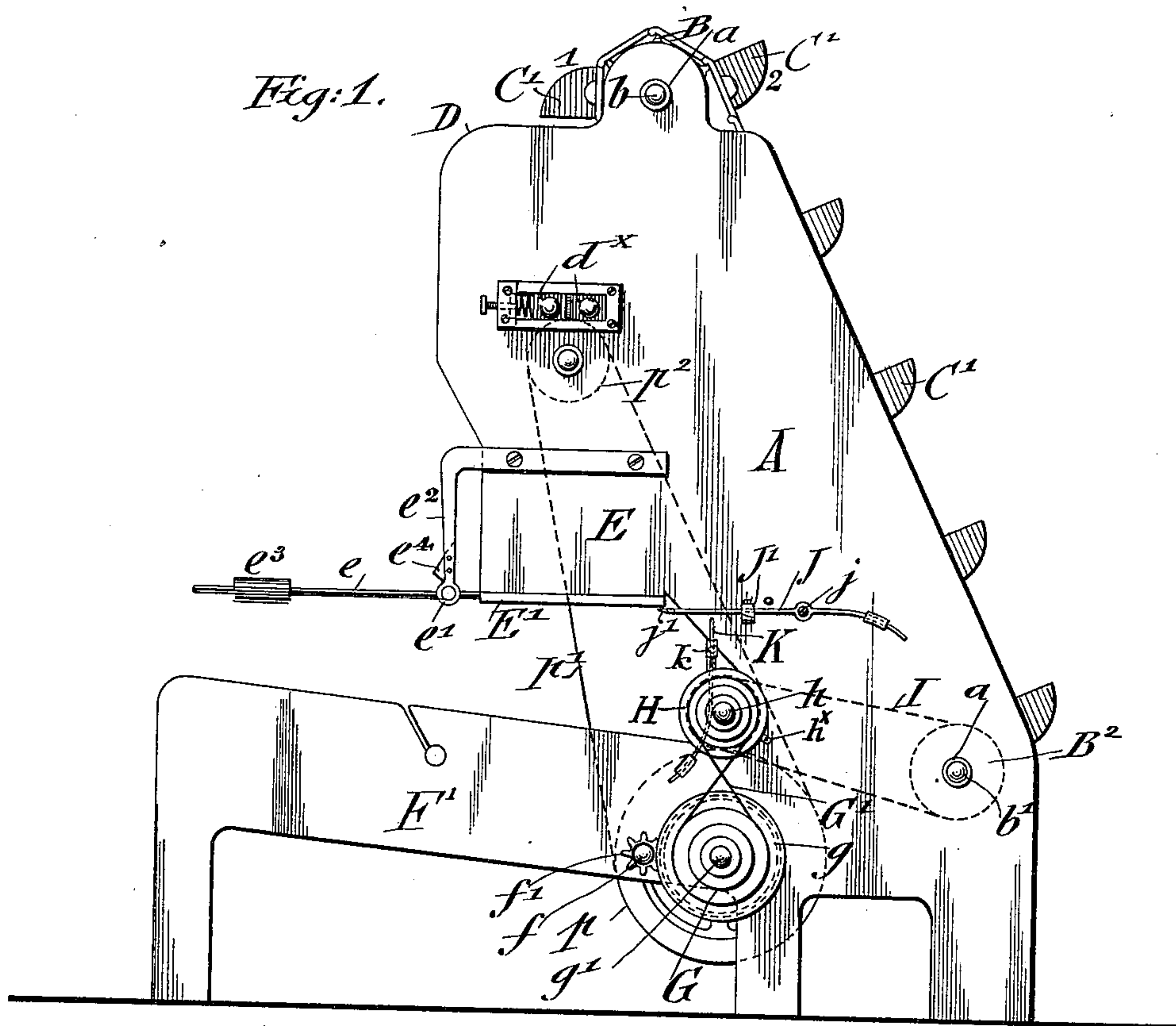
P. C. WARING.

AUTOMATIC FEEDING MECHANISM FOR HAT BODY FORMING MACHINES.

(Application filed July 17, 1900.)

(No Model.)

2 Sheets—Sheet 1.



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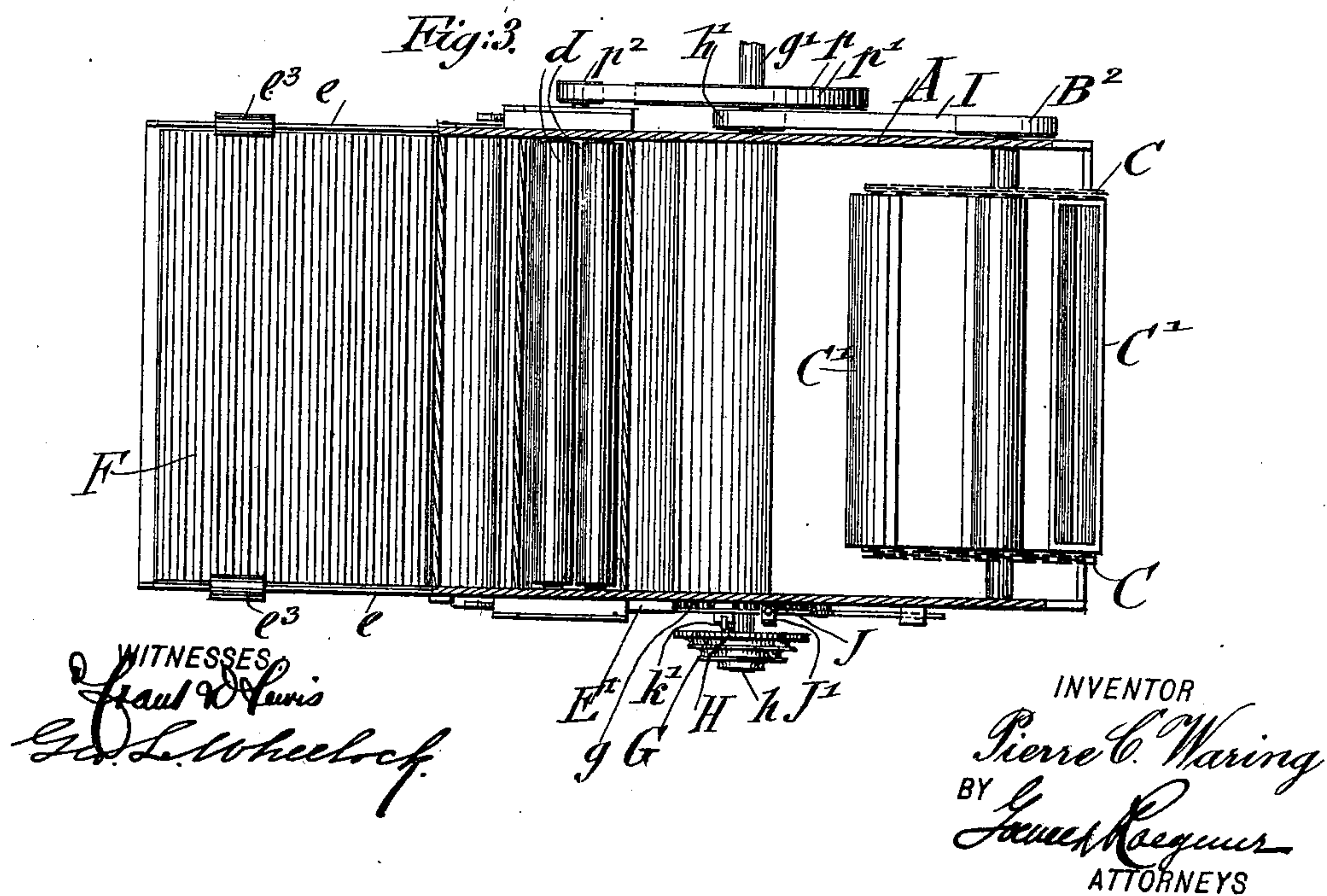
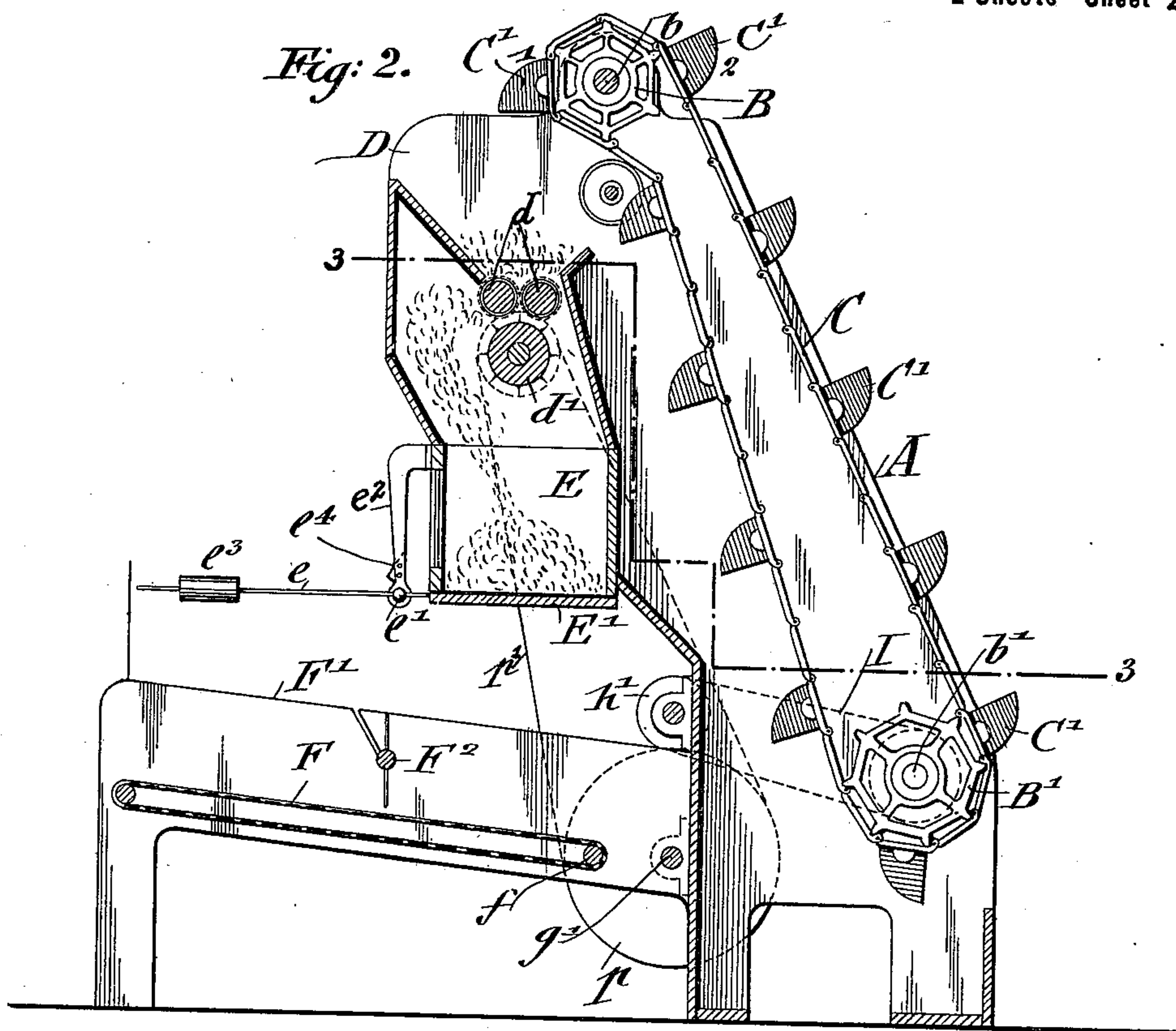
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(No Model.)

2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

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AUTOMATIC FEEDING MECHANISM FOR HAT-BODY-FORMING MACHINES.

SPECIFICATION forming part of Letters Patent No. 675,310, dated May 28, 1901.

Application filed July 17, 1900. Serial No. 23,904. (No model.)

To all whom it may concern:

Be it known that I, PIERRE C. WARING, a citizen of the United States, residing at Yonkers, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Automatic Feeding Mechanism for Hat-Body-Forming Machines, of which the following is a specification.

The present invention relates to automatic feeding apparatus for hat-body-forming machines or for other machines in which certain quantities of some material are to be fed out intermittently and at predetermined intervals of time. As applied to hat-body-forming machines the apparatus is adapted to feed previously-weighed-out quantities of fibrous material, such as fur, to a conveyer, which transfers the successive batches to the forming-machine.

It has heretofore usually been the practice in factories for making felt hats to weigh out certain quantities of fur and to place the batches into a corresponding number of compartments of a suitable box, from which one batch sufficient for one hat-body at a time is removed by a girl attending the forming-machine, there being one girl or other like attendant at each machine. This procedure, necessitating one feeder for each machine, is done away with by the present invention, one of the objects of which is to provide a feeding mechanism arranged and operating in such a manner that one feed operator only can attend to supplying several forming-machines—say six—with the requisite batches of certain weight without requiring any attention to the feeding mechanism by the operator in charge of the hat-body-forming machine. In the patent of F. F. Poole, No. 556,961, dated March 24, 1896, a feeding mechanism for hat-body-forming mechanism for feeding previously-weighed-out quantities of fur is shown which necessitates the interruption of the work of the man at the cone, so that he cannot give his entire attention to his work.

The present invention permits the attendant at the cone to give his entire attention thereto.

A further object of the present invention is to provide a feeding mechanism for those hat or other factories which use those ma-

chines that automatically weigh out and feed certain quantities of material from a hopper into which the material is charged in bulk and which factories make up small lots of certain classes of goods, as much valuable time is consumed in being compelled after one lot has been made up to remove from the hopper the remainder of a charge for the purpose of preventing any part of one kind getting mixed up with the next following kind.

My invention consists, to these ends, of certain features of construction and combinations of parts to be hereinafter described and then claimed.

In the accompanying drawings, Figure 1 is a side elevation of my improved automatic feeding apparatus. Fig. 2 is a sectional side elevation of the same. Fig. 3 is a transverse section on line 3 3, Fig. 2; and Fig. 4 is a detail side elevation of the timed controlling mechanism, showing one position in full lines and another in dotted lines.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A indicates a suitable framework, in bearings *a* of which are journaled an upper transverse shaft *b* and a lower transverse shaft *b'*, on which shafts at each end are respectively mounted the supporting-wheels *B B'*, over which are trained link belts *C C'*, which are connected by and support suitable buckets *C'*, which are spaced at equal distances apart. The bucket conveyer, such as described, is driven, as hereinafter stated, so as to cause the buckets to deliver the material charged therein into a hopper *D*, arranged below its upper end and in the bottom of which turns a pair of feed-rolls *d d*, which deliver the fibrous material to a rapidly-rotating picker *d'*, journaled in suitable bearings in the frame *A* and which in turn breaks up and delivers the fibrous material into an open-bottomed collecting-box *E* and upon a pan, platform, or drop-bottom *E'*, which closes the lower end of the box. One roll *d* is mounted in bearings of spring-actuated supports *d^x*, guided suitably in frame *A*. The pan or platform *E'* is mounted on a lever *e*, pivoted at *e'* to an arm *e²*, projecting from box *E*, and provided with counterweight *e³*, which holds the pan up against the box to close it. The weighted end of le-

ver e partakes of an upward movement, which is limited by an abutment e^4 on the arm e^2 , thereby limiting the downward movement of the pan or platform.

5 The fur or other material is dropped from the pan or platform, as hereinafter described, at the expiration of a predetermined period of time upon an endless conveyer-apron F , traveling in a box or trough F' and which is
10 suitably driven from shaft f , that is provided with a pinion f' , that meshes with a large gear-wheel g , that turns with a shaft g' , journaled in frame A , said shaft g' carrying a cone-pulley G , over which runs a cross-belt
15 G' , that runs also over a driven cone-pulley H , fixed on a shaft h , journaled in the said frame. The belt G' may be adjusted in the different grooves so as to produce a differential movement of the pulley H , causing it to
20 turn fast or slow. Shaft g' carries a pulley p , over which passes a belt p' , which in turn passes over a pulley p^2 on the shaft of picker d' , and thereby turns the same. A transmission-belt I is trained over a pulley h' on the shaft h
25 and over a pulley B^2 on the lower shaft b' of the bucket elevator C C' , so as to transmit corresponding motion from the pulley H to the bucket elevator.

A counterweighted lever or detent J is pivoted at j to the frame A at a suitable distance
30 above the cone-pulleys, and its forward end terminates under and is in line with the arc described by the pan or platform E' when moving, it being provided with a pivoted finger j' , which can move upwardly but not
35 downwardly relatively to the said detent. The function of said detent is to control the downward movement of the platform or pan and to release it at the expiration of a predetermined period of time, which in hat-making
40 depends upon when the fur to form a hat-body is to be delivered to the hat-body-forming machine.

J' is a block or lug suitably fixed on the detent J and provided with an irregular or cam
45 groove J^2 .

K indicates a gravitating stop or releasing lever, which is pivoted at k to the frame A at a point below the detent J , its upper end being bent laterally inward, so as to form a projection k' . Said lever K is arranged in such
50 position relatively to the cone-pulley H that a projecting trip h^x on the said pulley may strike it below its pivot during the rotation of
55 said pulley, and thereby oscillate the lever K .

The pulley H , levers J K , and attribute parts constitute what is termed a "timed controlling mechanism," while the rolls d and picker d' constitute a "breaker," and these
60 terms will be used hereinafter. In hat-manufacturing it is necessary that the breaker d d' be used, because the fur is more or less lumpy and should be broken up, so that it may be spread evenly about on the conveyer-
65 apron F by a rotary distributor F^2 , which is suitably rotated.

The described apparatus used in connec-

tion with a hat-body-forming machine operates as follows: Power is applied to drive-shaft f so as to transmit motion to gear g , 70 the timed controlling mechanism, the bucket elevator, and the breaker. A boy attending a certain number of machines assigned to him now takes from a compartmented box a previously-weighed-out quantity of fur and de- 75 posits the batch in one of the empty lower buckets C' of the bucket elevator and places similar batches of fur in any other empty buckets which may be turned upright. In a similar way the boy attends to the other ma- 80 chines belonging to his work all successively. The bucket elevator shown in the drawings is provided with twelve buckets, and the pulley H is timed so as to turn around twelve times while the buckets are carried around 85 once, the number of turns of the pulley H always corresponding with the number of buckets of the bucket elevator. As a bucket 1, for instance, brings up its charge of fur and is moved to the position shown it dis- 90 charges the same into the hopper D , and the breaker d d' breaks up and transfers the matted fur therefrom into the collecting-box E , depositing it upon the platform or pan E' . Platform or pan E' will be lowered slightly 95 by the weight of the fur until it rests upon the end of controlling-detent J , which is upheld by resting upon the projection k' of lever K , and then at about the end of a pre- 100 determined interval of time when the fur is to be delivered to the hat-body-forming machine the trip h^x on the cone-pulley H comes in contact with and oscillates the pendent lever K , causing its projection k' to enter the groove J^2 in lug J' and to temporarily but posi- 105 tively hold the controlling-detent J in position until the exact termination of said interval of time, whereupon the projection k' is caused to pass out of groove J^2 , and the weight of the fur on the platform E' causes the lat- 110 ter to drop past the controlling-detent J and to thereby drop the fur onto the conveyer-apron F . Immediately after the dropping of the fur the platform or pan moves upwardly and, turning the finger j' on its pivot, 115 passes the controlling-detent J and comes to rest against the lower end of the collecting-box E ready to receive the weighed-out batch of fur which drops thereonto from the next following bucket 2. The movement of the 120 bucket conveyer must be so adjusted relatively to the downward movement of the pan or platform E' that no bucket will deposit its charge except when the said pan or platform is locked above the controlling-detent J . It 125 will be understood that the pan or platform E' does not dump until the breaker d d' has fed through all the fur, the time which this takes being approximately determined beforehand. As empty buckets come up the boy in 130 charge fills them with weighed-out batches of fur and then attends another feeding apparatus, so that the attendant at the forming-machine does nothing except as usual and

does not have to look after any portion of the described apparatus.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In automatic feeding apparatus, the combination of a bucket elevator provided with buckets, accessible for receiving previously-weighed-out hand charges of material, a movable pan or platform onto which the buckets are adapted to discharge their contents, timed controlling mechanism for releasing said pan between successive discharges of the buckets, and means for imparting motion to said elevator and causing the succeeding buckets to arrive at the position of the previous buckets during the interval when the pan is locked in position, released and again locked in position, substantially as set forth.

2. In automatic feeding apparatus, the combination of a bucket elevator provided with buckets, a movable pan or platform onto which the contents of the buckets are adapted to be discharged, timed controlling mechanism for releasing said pan at about the end of a predetermined interval of time when the fur is to be delivered to the hat-body-forming or other machine, and means for imparting motion to said elevator and causing the succeeding buckets to each discharge its contents between the successive deliveries of the pan or platform, substantially as set forth.

3. In automatic feeding apparatus, the combination of a bucket elevator, a movable pan or platform, controlling mechanism provided with a detent for engaging said pan and locking the same in raised position, and means comprising a driving and a driven member

for connecting a portion of the controlling mechanism with said elevator for operating it synchronously therewith, said buckets being of a certain number in proportion to the speed of the driving member, and each bucket discharging its contents between the successive deliveries of the pan or platform, substantially as set forth.

4. In automatic feeding apparatus, the combination of a bucket elevator provided with freely-accessible buckets into which previously-weighed-out quantities of material may be discharged, a movable pan or platform, a breaker through which the material is adapted to pass and arranged above the said pan, and timed controlling mechanism for operating said elevator and releasing said pan, substantially as set forth.

5. In automatic feeding apparatus, the combination of a bucket elevator provided with freely-accessible buckets, a hopper below the discharge end of the elevator, a breaker at the bottom of the hopper through which the material passes, a stationary collecting-box below the breaker, a pan or drop-bottom closing the lower end of said box, and controlling mechanism for operating said elevator, said controlling mechanism being provided with a detent for engaging the pan and controlling the dropping and releasing thereof, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

PIERRE C. WARING.

Witnesses:

JULIUS TACHMAN,
CHAS. H. DESGREY.